BEECH RED SPIDER MITE *EOTETRANYCHUS FAGI* (ZACHER) (ACARI: TETRANYCHIDAE), A PEST OF *FAGUS SYLVATICA* NEW TO BRITAIN

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Abstract

The tetranychid mite *Eotetranychus fagi* (Zacher), a pest of common beech, *Fagus sylvatica* L. is reported in Britain for the first time from Surrey (VC 17), and was later found in Middlesex (VC 21), Hertfordshire (VC 20) and Cambridgeshire (VC 29).

Introduction

Eotetranychus fagi (Zacher) was discovered in Britain for the first time, on 1.ix.2004, on a common beech hedge (*Fagus sylvatica* L.) in a private garden near Guildford, Surrey (VC17) TQ 023505. The owner had noticed discoloured foliage and forwarded a sample to the entomology section at the Royal Horticultural Society's (RHS) Garden in Wisley, from where it was sent to the Central Science Laboratory (CSL) for the mites to be identified. Soon after the first find of *E. fagi* near Guildford, additional finds were confirmed from two other locations: Norwood, Middlesex (VC 21) TQ 098922, 6.ix.2004, and Burpham, Surrey TQ 009517, 13.ix.2004, in both cases from beech hedges. In 2006 *E. fagi* was found in West Byfleet, Surrey (no grid reference recorded) 28.viii.2006, Royston, Hertfordshire (VC 20) TL 358406, 20.ix.2006, and in Cambridgeshire (VC 29) TL 451569, 14.x.2006, again from beech hedges.

Materials

Five slides with six female and five male specimens were prepared and deposited in the collection of the Natural History Museum, London (NHM) (Accession Number BMNH (E) 2006-110); two slides with four females, two males and two protonymphs were deposited in the Museum für Naturkunde der Humboldt-Universität, Berlin (Accession Numbers ZMB 47254 & 47255) and nine slides with eight females, 19 males, six protonymphs and eight deutonymphs (Ref Nos. CSL 20413358 & 20614605), as well as dead mite colonies on dried leaf material were retained within the CSL collection.

Distribution and hosts

Eotetranychus fagi was described from specimens collected in Germany from common beech (Zacher, 1922) and has since been recorded in Austria (Zacher, 1932) Georgia (former Soviet Republic) (Reck, 1950), Italy (Bernini, Castagnoli & Nannelli, 1995), Poland (Dobosz & Skorupska, 1995), Switzerland (Gunthart & Gunthart, 1959), Belgium (Witters *et al.*, 2004) and England from September 2004. This mite has also been recorded on *Fagus orientalis* Lipsky (Reck, 1950).

Spider mites, similar in appearance to the specimens found near Guildford, were recorded by the RHS on beech hedges at five other locations during 2004 and 2005,

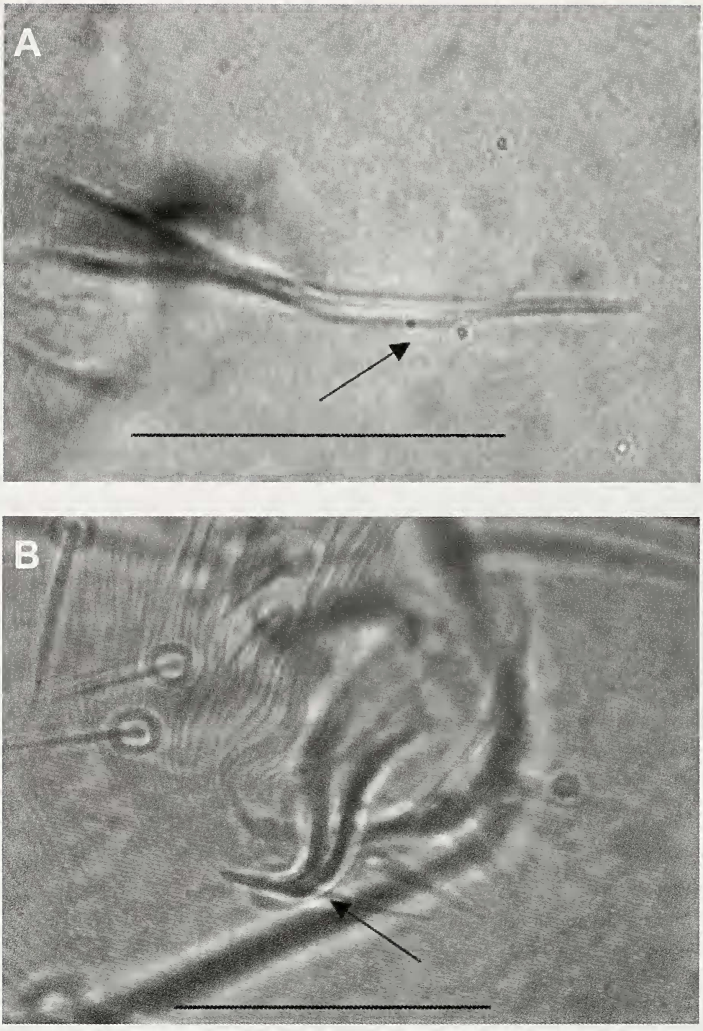

Plate 1. Aedeagus of (A) *Eotetranychus carpini* and (B) *Eotetranychus fagi* indicated by arrows. Scale bars = 25μm.

two in Middlesex and three in Surrey, but samples were not collected and so the identity of the mites was not verified from slide-mounted specimens.

Identification and damage

In comparison to other tetranychid mites, *E. fagi* are small; females measure between 0.36–0.39 mm in body length whilst males are slightly smaller at 0.30 mm and have a more pointed posterior body margin. In life the adult mites are pale

greenish-yellow with a pair of pink anterior 'eye spots', some small reddish-pink spots on the dorsal surface of the opisthosoma, and the gut contents can sometimes be seen as a dark area inside the body. The eggs resemble those of the common two-spotted spider mite, *Tetranychus urticae* (Koch), being spherical, pale yellowish-green and lacking a dorsal stalk or 'stipe', a structure present on the eggs of the common polyphagous species *Panonychus ulmi* (Koch).

Identification of the adults to genus is quite straightforward using the key provided by Bolland *et al.* (1998), but specific identification is less easy as there is no comprehensive key to the known species of *Eotetranychus*. There were no reference specimens of *E. fagi* in the NHM collection (Dr. A.S. Baker, *pers comm.*) and Zachers' material could not be located. Slide mounted specimens were compared to the descriptions of all seven *Eotetranychus* species known to occur in Britain, and to those of the four *Eotetranychus* species recorded on *Fagus* spp. Of the latter, namely *E. carpini* (Oudemans), *E. fagi, E. hicoriae* (McGregor) and *E. pallidus* (Garman), only *E. carpini* had previously been found in Britain. *Eotetranychus carpini* can most easily be separated from *E. fagi* by the shape of its aedeagus, which is long, slender and sinuous in *E. carpini* as opposed to being shorter with a sharply ventrally directed posterior that tapers to a point (Plate 1A & B).

Only one other species of spider mite, *P. ulmi*, has been recorded on *F. sylvatica* in the British Isles. Adults of *P. ulmi* are easily separable from *Eotetranychus* in the field being larger, entirely reddish, globular and with dorsal body setae arising from prominent tubercles.

The presence of *E. fagi* colonies on beech is indicated by a sparse silk webbing on the under surfaces of the leaves, particularly at the base of the leaf blade. The undersides of infested leaves have black excrement spots and are littered with cast mite skins and egg shells. The feeding damage consists of a fine pale mottling of the upper leaf surface concentrated along the veins and in the axils of the lateral veins. Mottling of beech leaves can also be caused by leafhoppers but this tends to be of a coarser nature and more randomly distributed over the upper leaf surface. Leaf damage caused by *E. fagi* is unsightly but is unlikely to affect the growth of beech hedges; however, Witters *et al.* (2004) reported that feeding by *E. fagi* causes leaves to turn brown and fall prematurely.

Discussion

Both the confirmed and unconfirmed records of *E. fagi* were from garden hedges rather than tree forms of beech. It is possible that a hedge provides a warmer microclimate than a tree and may allow the development of a larger mite population. In addition the foliage of a hedge is easier to observe and thus any symptoms of attack are likely to be more noticeable. All the records of *E. fagi* were made in the autumn, which suggests that damage does not become apparent until late in the growing season.

Whether *E. fagi* is an endemic species that has until now remained undetected or is a recent introduction is not known. Beech hedging is widely grown and, given the availability of suitable hosts *E. fagi* has the potential to be more widely distributed; however, the second author has also looked for *E. fagi* in south-east Yorkshire (VC 61), north-east Yorkshire (VC62), Carmarthenshire (VC44) and Pembrokeshire (VC45) without success. The current records therefore indicate that this species is restricted at present to the south-east of England.

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SHORT COMMUNICATION

***Lasius brunneus* (Latreille) (Hymenoptera: Formicidae) in Somerset.** – *Lasius brunneus* is now known from a number of counties in southern England and Wales. This Nationally Scarce species is common in the Severn Vale and has been found twice in Wiltshire (Alexander & Taylor, 1997; Blacker & Collingwood, 2002; *pers. obs.*). However, it has not previously been reported from nearby Somerset, despite searches (Collingwood, *pers. comm.*).

Ants were found on *Fraxinus excelsior* L. and *Tilia cordata* Mill. in Weston Big Wood, Portishead (ST455751; VC6 North Somerset), 10 June 2006. These were immediately recognised as *L. brunneus*, though a few were collected and later confirmed as such. It is likely that this species occurs elsewhere in Somerset but has so far been overlooked. – Mike J. Lush, Just Ecology, Woodend House, Woodend, Wotton-Under-Edge, Gloucestershire, GL12 8AA, U.K.

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